

Commonwealth of Kentucky
Division for Air Quality
REVISED

PERMIT STATEMENT OF BASIS

TITLE V (DRAFT) No. V-04-024

TENNESSEE VALLEY AUTHORITY

DRAKESBORO KY.

JANUARY 13, 2005

BEN MARKIN, REVIEWER

SOURCE I.D. #: 21-177-00006

SOURCE A.I. #: 3239

ACTIVITY #: APE20040002

SOURCE DESCRIPTION:

Tennessee Valley Authority operates three coal-fired electric steam generating boilers. All three are equipped with selective catalytic reduction for NO_x control. To control particulate matter and SO₂ emissions, Units 1 and 2 are equipped with venturi type flue gas desulfurization scrubbers. Electrostatic precipitators control particulate matter emissions from Unit 3 with flue gas conditioning when deemed necessary. A flue gas desulfurization scrubber is under construction on Unit 3 with projected start-up in late 2006. The facility also includes coal handling equipment, limestone handling equipment, building heat boilers and heaters, and ash, gypsum, and coal wash plant disposal processes.

COMMENTS

All three electric generating units are equipped with selective catalytic reduction for NO_x control. To control particulate matter and SO₂ emissions, Units 1 and 2 are equipped with venturi type flue gas desulfurization scrubbers, and one is under construction on Unit 3.

Emission Factors were obtained primarily from AP-42 and stack test data.

The large boiler units are regulated by 401 KAR 61:015, Existing boilers. The newer coal handling is regulated by 40 CFR 60 Subpart Y, Standards of Performance for Coal Preparation Plants. 40 CFR 60 Subpart OOO, Standards of Performance for Nonmetallic Mineral Processing Plants, is applicable to the newer limestone handling at the facility. 401 KAR 51:010 and 61:020, New and Existing processes, and 401 KAR 63:010, Fugitive emissions, covers the remaining units.

This permit approves the use of alternative fuels to be combusted in the main boiler units. This approval is only for compliance with standards under the Clean Air Act. It does not relieve the need to obtain other permits or approvals from Division of Waste Management or under TSCA (Toxic Substances Control Act).

The three electric generating units have redistributed SO₂ limits. They are source specific, and do not match those found in 401 KAR 61:015. Units # 1 and 2 also have increased opacity limits. 401 KAR 61:015 sets them at 20%. TVA followed the procedure found in 401 KAR 50:055 to increase these allowables while meeting the particulate matter emission limits.

The SO₂ allowables for the three Electric Generation Units are based upon a source specific revision to the Kentucky State Implementation Plan (SIP) as detailed in 40 CFR 52 Subpart S.

PSD APPLICABILITY

TVA obtained a NSR permit on 8/17/1979 based on an application submitted 11/2/1978. This was for the coal washing plant. Emissions were not subject to a full PSD/NSR review at that time because the construction was limited to less than 50 tons/year, 1000 lbs/day and 100 lbs of total suspended particulates. This action was performed under a previous version of PSD/NSR regulations, when the applicable threshold for uncontrolled emissions was 50 tons.

A Federal Consent decree required TVA to install control equipment for the control of particulate and sulfur dioxide emissions. TVA had to build support facilities (limestone handling). These facilities were built without a permit from Kentucky, under a federal order. Operation at the allowable and actual hourly emission rates would have resulted in an annual particulate emission rate of more than 25 tons per year. Operating permit O-86-75 was conditioned to limit annual emissions rates to less than 25 tons per year, to preclude applicability of PSD/NSR. The limit established by O-86-75 remains in effect for particulate emissions.

Units GACT10 and GACT11 are not considered part of GACT7 and GACT8 because these units are associated with a new limestone handling system and the new scrubber on Unit 3. A construction permit application for this limestone handling system was submitted to the Division on March 3, 2003 and approved on August 6, 2003. The GACT10 and GACT11 project will primarily support the scrubber currently under construction for Unit 3, but will have redundant capacity that can be used to feed the Unit 1 and 2 scrubbers when needed.

This permit covers the use of certain alternative fuels in minimal amounts. Among these are wood waste, other nonhazardous waste materials such as used oil with less than 50 ppm PCB, boiler cleaning chemicals, solvents, oil-contaminated soil, rags, absorbent materials/rags and papers. Certain requirements for waste oil are covered by other regulatory authorities such as the Toxic Substance Control Act (TSCA). This permit does relieve the applicant from compliance with any other regulatory requirements of TSCA or any other program.

NEW BOILER MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY (MACT) 40 CFR 63, SUBPART DDDDD AS AN APPLICABLE REQUIREMENT FOR:

COMB 4(26), UNIT 1 AND 2- BUILDING HEAT BOILERS, COMB 5 (28), UNIT 3-BUILDING HEAT BOILER, EQPT 22 (22A)-EIGHT DRAVO HEATERS, EQPT 36 (26B)-THREE DRAVO HEATERS

The regulations are applicable to COMB4 (26) Unit 1 Building Heat Boiler, Unit 2 Building Heat Boiler, and COMB5 (28) Unit 3 Building Heat Boiler for initial notification requirements (40 CFR 63.9(b)), but there are no applicable emission standards, monitoring, recordkeeping and reporting for the units at this time. The applicable regulations will be added to the appropriate sections of the permit.

EQPT22 (29a) Eight Dravo Heaters and EQPT36 (29b) Three Dravo Heaters are classified in the small liquid fuel subcategory as defined in 40 CFR 63.7575. As such these emission units are not subject to any requirements of 40 CFR 63, Subpart DDDDD and 40 CFR 63.9(b)

EMISSION AND OPERATING CAPS DESCRIPTION:

The coal washing plant was built prior to the current PSD regulation. At the time the coal washing plant was built, the existing PSD requirements were met by the source accepting a 100 lb/hr, 1000lb/day, and 50 tons/yr limit on particulate matter emissions. The limestone handling particulate matter emissions is limited to 25 tons/yr in order to preclude 51:017, Prevention of Significant Deterioration.

PERIODIC MONITORING:

Moisture from the wet scrubbers and merging of multiple plumes makes Method 9 reading difficult to obtain for opacity. Agreed Order AI-89-41D signed in 1989 by TVA and the Kentucky Division for Air Quality (DAQ) calls for an alternative monitoring plan for opacity compliance demonstration, but no agreement on an alternative has been reached. The permit continues the quarterly particulate matter stack tests on Units 1 and 2, and incorporates a condition that requires an alternative plan to be submitted to DAQ within 90 days of proposed permit issuance.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.